

CLAIMS

1. A polylactic acid article formed from a sheet of a resin composition comprising polylactic acid as a major resin component and a crystal nucleus agent,

the polylactic acid having an optical purity of not lower than 90% and a residual lactide amount of 0.1 to 0.6% by mass,

the crystal nucleus agent being present in a proportion of 1 to 25% by mass in the resin composition,

the formed article being characterized in that a difference ($|\Delta H_m| - |\Delta H_c|$) between an absolute value of a crystal fusion heat amount ΔH_m as measured at a heat-up rate of 20°C/min by means of a differential scanning calorimeter and an absolute value of a heat-up crystallization heat amount ΔH_c generated by heat-up crystallization is not lower than 25J/g,

the formed article having a crystallinity of not lower than 35% as determined by X-ray measurement and a crystallization speed of not lower than 0.05 min⁻¹ at 130°C.

2. A polylactic acid formed article as set forth in claim 1, wherein the crystal nucleus agent is talc having an average particle diameter of 0.1 to 10 μ m.

3. A polylactic acid formed article as set forth in claim 1 or 2, wherein the resin composition further

comprises a dispersant for the crystal nucleus agent, and the dispersant comprises an aliphatic amide.

4. A polylactic acid formed article as set forth in claim 3, wherein the aliphatic amide comprises at least one of erucamide, stearamide, oleamide, ethylene-bis-stearamide, ethylene-bis-oleamide and ethylene-bis-laurylamide.

5. A polylactic acid formed article as set forth in claim 1, which is formed by one of vacuum forming, air pressure forming, vacuum air pressure forming and press forming.

6. A production process for a polylactic acid article formed from a sheet of a resin composition comprising polylactic acid as a major resin component and a crystal nucleus agent, the production process comprising the steps of:

extruding the resin composition into a sheet, the polylactic acid in the resin composition having an optical purity of not lower than 90% and a residual lactide amount of 0.1 to 0.6% by mass, the crystal nucleus agent being present in a proportion of 1 to 25% by mass in the resin composition;

heat-treating the sheet at a temperature of 110 to 150°C for 1 to 30 seconds; and

forming the sheet into the article after the heat

treatment.

7. A production process for a polylactic acid article formed from a sheet of a resin composition comprising polylactic acid as a major resin component and a crystal nucleus agent, the production process comprising the steps of:

extruding the resin composition into a sheet, the polylactic acid in the resin composition having an optical purity of not lower than 90% and a residual lactide amount of 0.1 to 0.6% by mass, the crystal nucleus agent being present in a proportion of 1 to 25% by mass in the resin composition; and

forming the sheet into the article while heat-treating the sheet at a temperature of 110 to 150° C for 1 to 30 seconds.

8. A polylactic acid formed article production process as set forth in claim 6 or 7, wherein one of vacuum forming, air pressure forming, vacuum air pressure forming and press forming is employed for the forming.

9. A polylactic acid article formed from a sheet of a resin composition comprising polylactic acid as a major resin component,

the resin composition comprising a crystalline polylactic acid resin (A) having an optical purity of not lower than 95%, an aromatic/aliphatic copolymer

polyester or an aliphatic polyester (B) having a glass transition temperature of not higher than 0°C , and talc (C) having an average particle diameter of 1 to $8\mu\text{m}$ with an (A)/(B) blend ratio of (A)/(B)=97/3 to 80/20% by mass and with a (C) blend ratio of 1 to 30% by mass based on the total amount of the composition,

the formed article having a crystallization index such that a difference between an absolute value of a crystal fusion heat amount ΔH_m as measured at a heat-up rate of $20^{\circ}\text{C}/\text{min}$ by means of a differential scanning calorimeter and an absolute value of a heat-up crystallization heat amount ΔH_c is $(|\Delta H_m| - |\Delta H_c|) \geq 25\text{J/g}$, a crystallization speed of not lower than 0.010 min^{-1} at 130°C , and a falling ball impact resistance such that a falling ball height is not smaller than 20cm with respect to a thickness of $500\mu\text{m}$.

10. A polylactic acid formed article as set forth in claim 9, which is formed by one of vacuum forming, air pressure forming, vacuum air pressure forming and press forming of the sheet.

11. A production process for a polylactic acid article formed from a sheet of a resin composition comprising polylactic acid as a major resin component, the production process comprising the steps of:

extruding the resin composition into a sheet, the

resin composition comprising a crystalline polylactic acid resin (A) having an optical purity of not lower than 95%, an aromatic/aliphatic copolymer polyester or an aliphatic polyester (B) having a glass transition temperature of not higher than 0°C, and talc (C) having an average particle diameter of 1 to 8 μ m with an (A)/(B) blend ratio of (A)/(B)=97/3 to 80/20% by mass and with a (C) blend ratio of 1 to 30% by mass based on the total amount of the composition;

heat-treating the sheet at a treatment temperature of 110 to 150°C for a treatment period of 1 to 30 seconds and forming the sheet into the article.

12. A polylactic acid formed article production process as set forth in claim 11, wherein the sheet is formed by one of vacuum forming, air pressure forming, vacuum air pressure forming and press forming after the sheet is heat-treated.

13. A polylactic acid formed article production process as set forth in claim 11, wherein the sheet is formed by one of vacuum forming, air pressure forming, vacuum air pressure forming and press forming, while the sheet is heat-treated in a die.